

LA-UR-21-25770

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Title: Overview of the AOT Division

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Intended for: Presentation to 2021 AOT Summer Students

Issued: 2021-06-18

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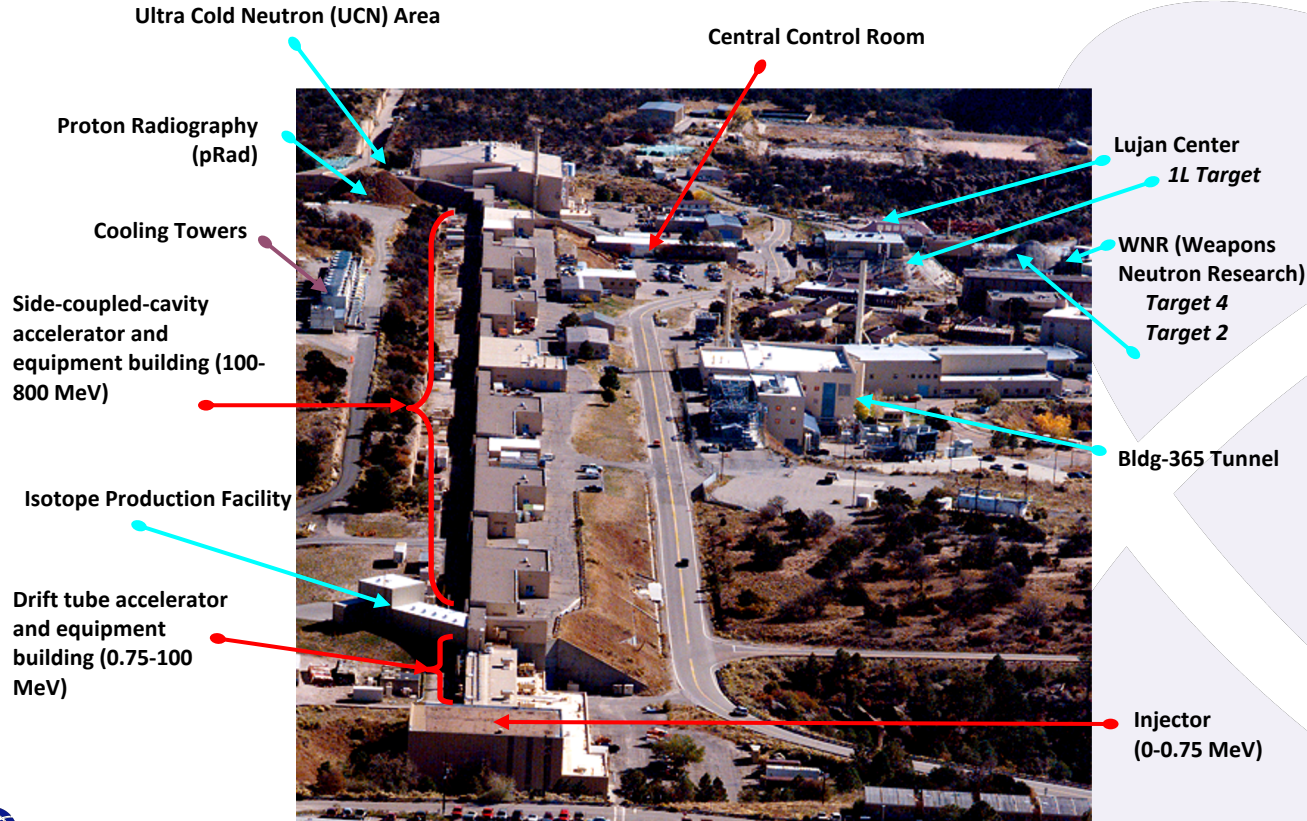
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Overview of the AOT Division

An aerial photograph showing a large industrial or manufacturing facility, identified as the AOT Division. The facility consists of several long, light-colored buildings with flat roofs, arranged in a U-shape. There are numerous parking lots with cars and trucks, and various pieces of equipment and materials scattered around. The facility is situated in a desert environment with sparse vegetation and a prominent rocky cliff face in the background. A winding road runs alongside the facility, and a large body of water is visible in the distance.

Stephen Milton, Mark Gulley

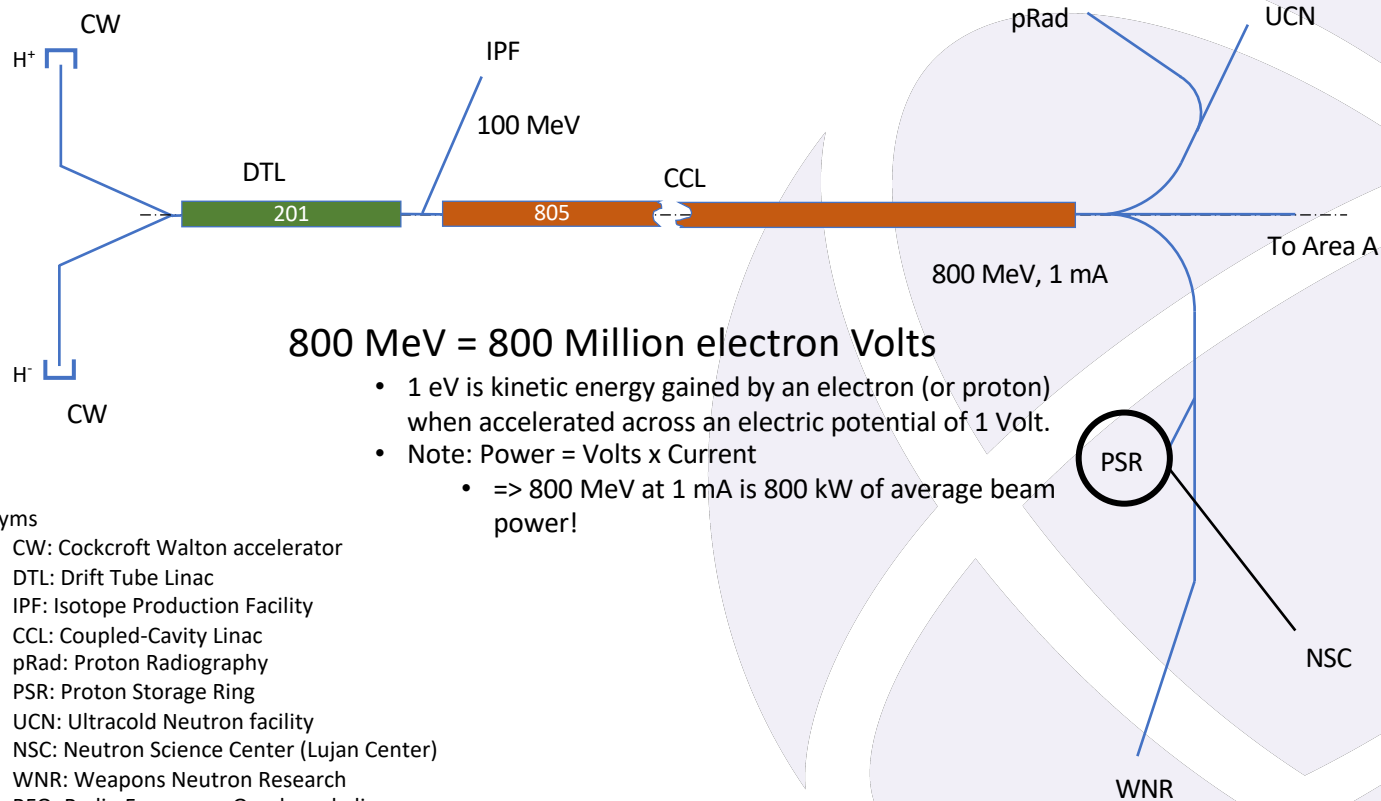
The LANSCE LINAC provides flexible time-structured H^+ / H^- beams serving five experimental areas



- Operations began in 1972
- 800-MeV (1 MW) proton beam
- Highly capable/flexible facility
 - 100 MeV to 800 MeV beam energy
 - 5 target stations
 - 3 neutron spallation targets
 - 16 beam lines
 - Time structure of beam allows for a large dynamic range of experiments
- Dynamic proton radiography
- Neutron radiography
- Structural material properties
- Nuclear properties of materials
- Fundamental physics
- Isotope production



LANSCCE Accelerators: The big stuff



800 MeV = 800 Million electron Volts

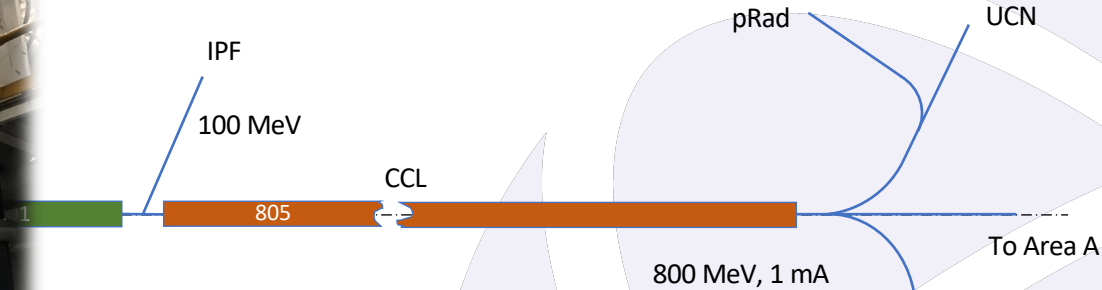
- 1 eV is kinetic energy gained by an electron (or proton) when accelerated across an electric potential of 1 Volt.
- Note: Power = Volts x Current
 - => 800 MeV at 1 mA is 800 kW of average beam power!

• Acronyms

- CW: Cockcroft Walton accelerator
- DTL: Drift Tube Linac
- IPF: Isotope Production Facility
- CCL: Coupled-Cavity Linac
- pRad: Proton Radiography
- PSR: Proton Storage Ring
- UCN: Ultracold Neutron facility
- NSC: Neutron Science Center (Lujan Center)
- WNR: Weapons Neutron Research
- RFQ: Radio Frequency Quadrupole linac



SCE Accelerators: The big stuff



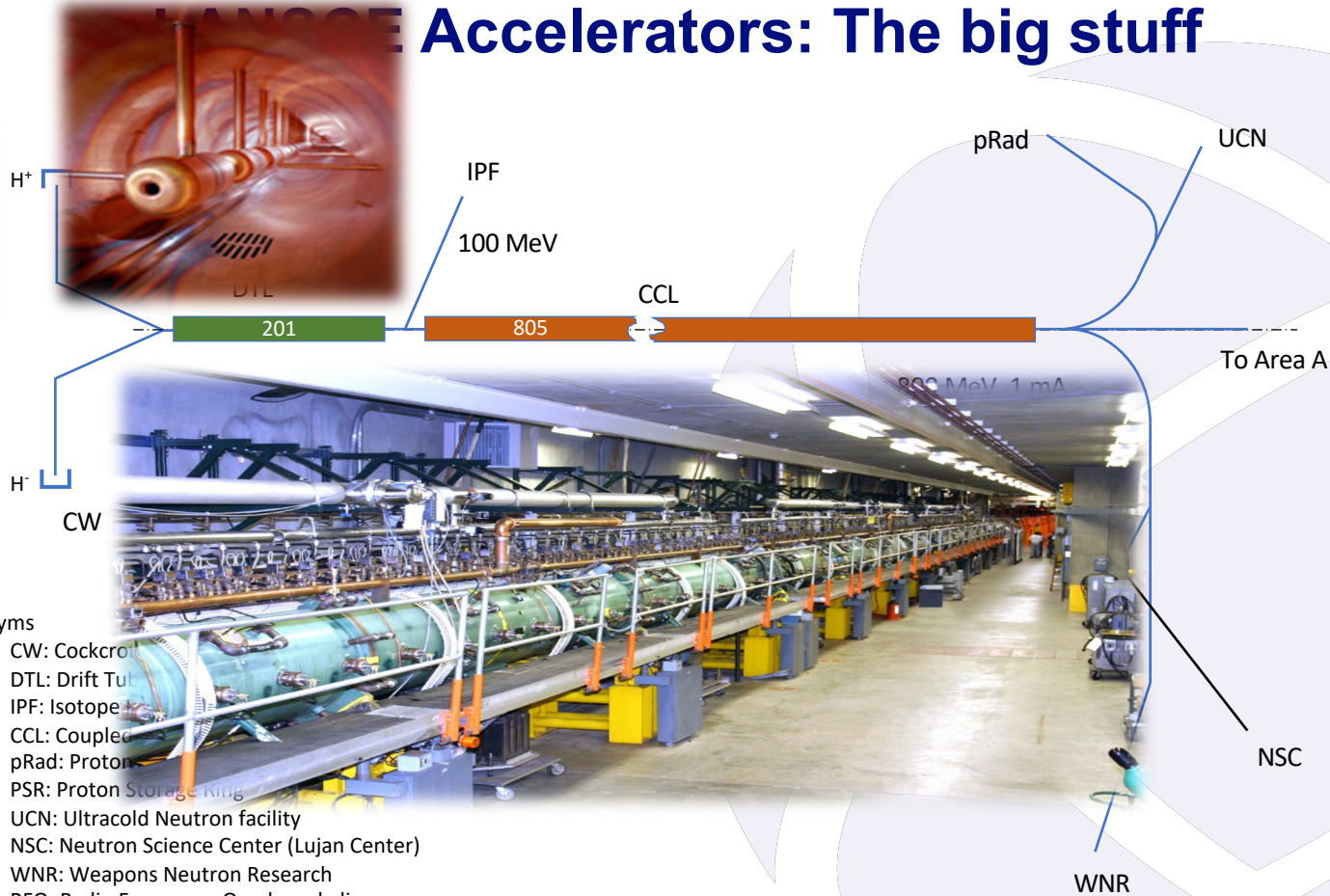
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LANSCOE Accelerators: The big stuff

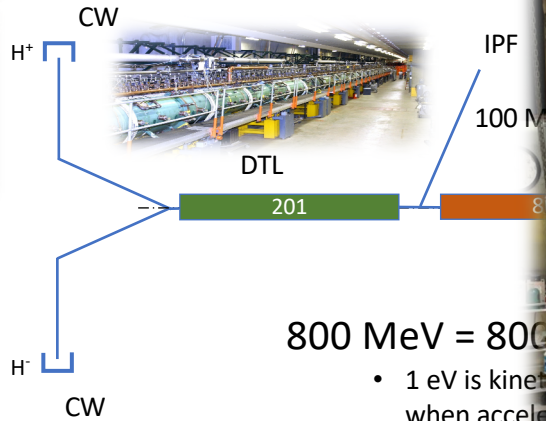


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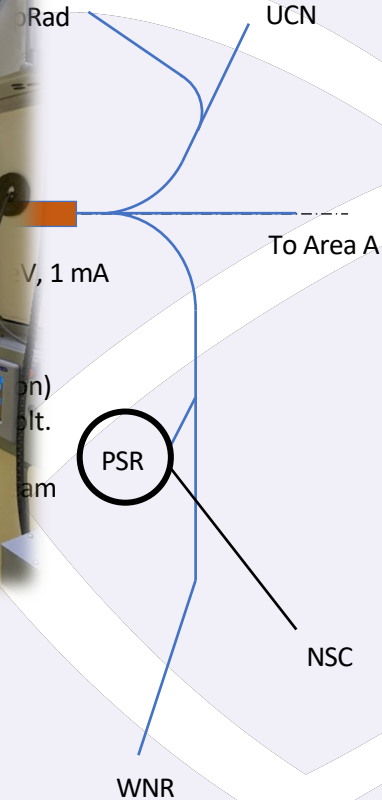


LANSCCE Accelerators: The big stuff



800 MeV = 800

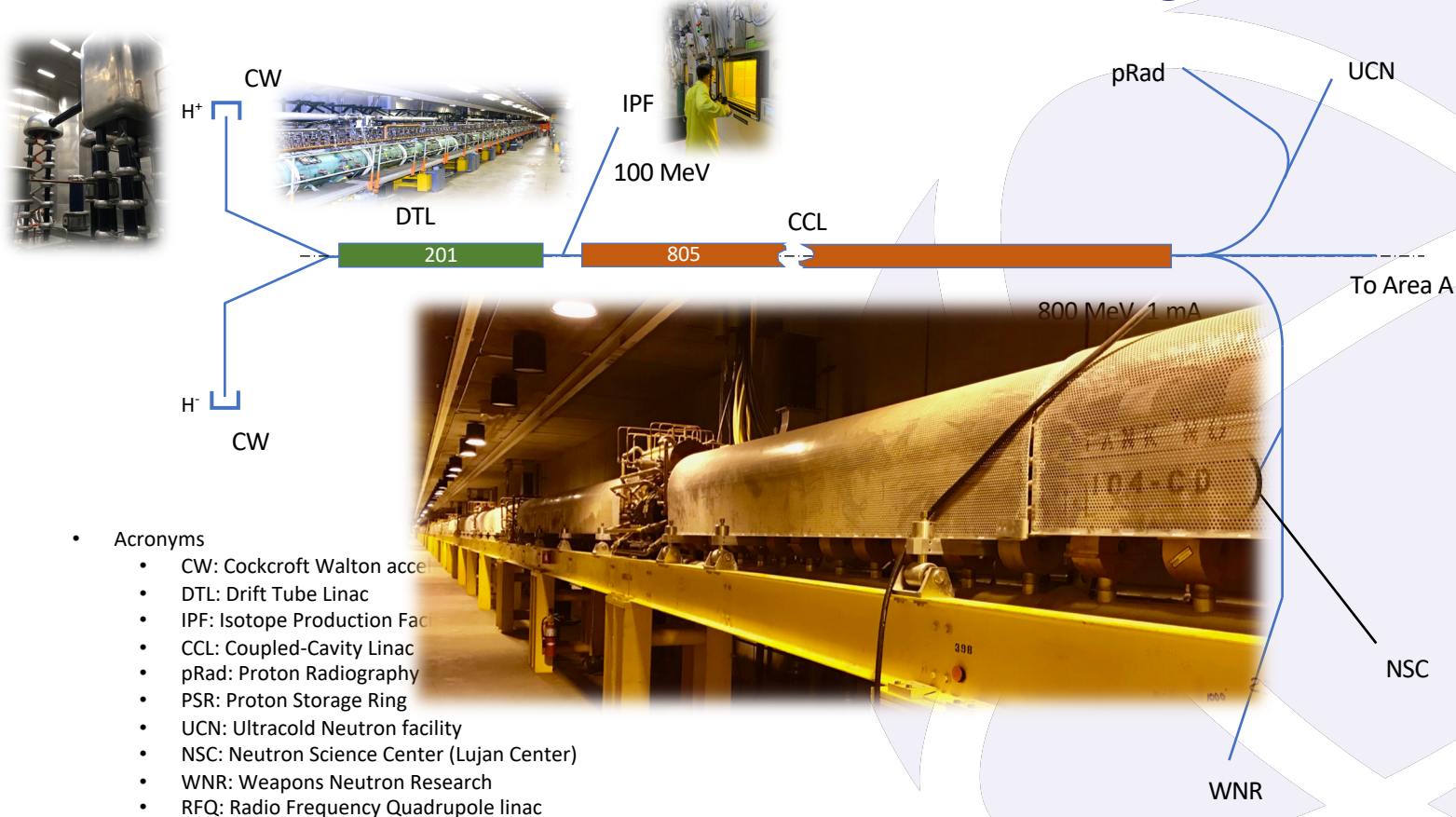
- 1 eV is kinetic energy when accelerated
- Note: Power
 - => 800 MeV power



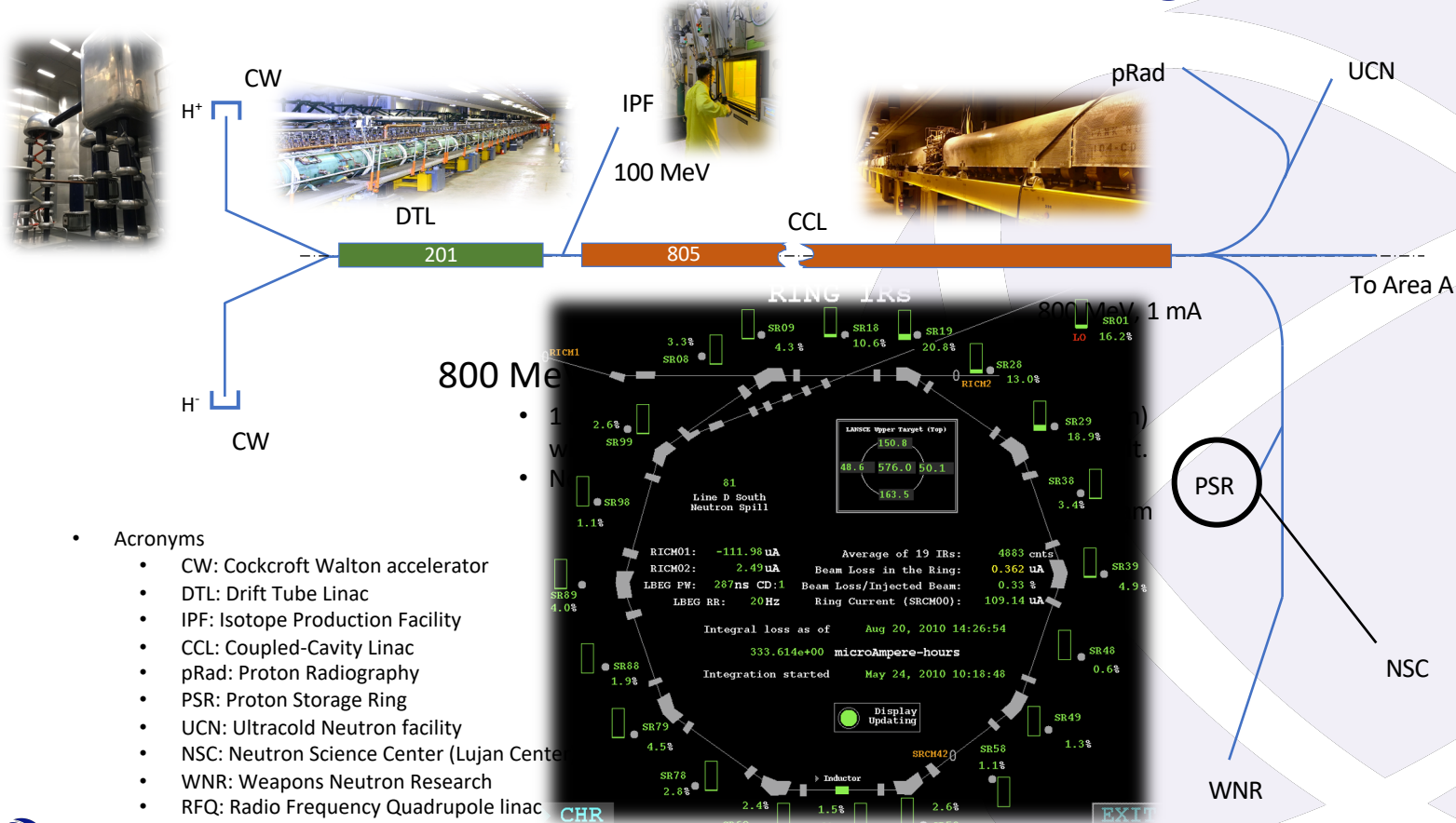
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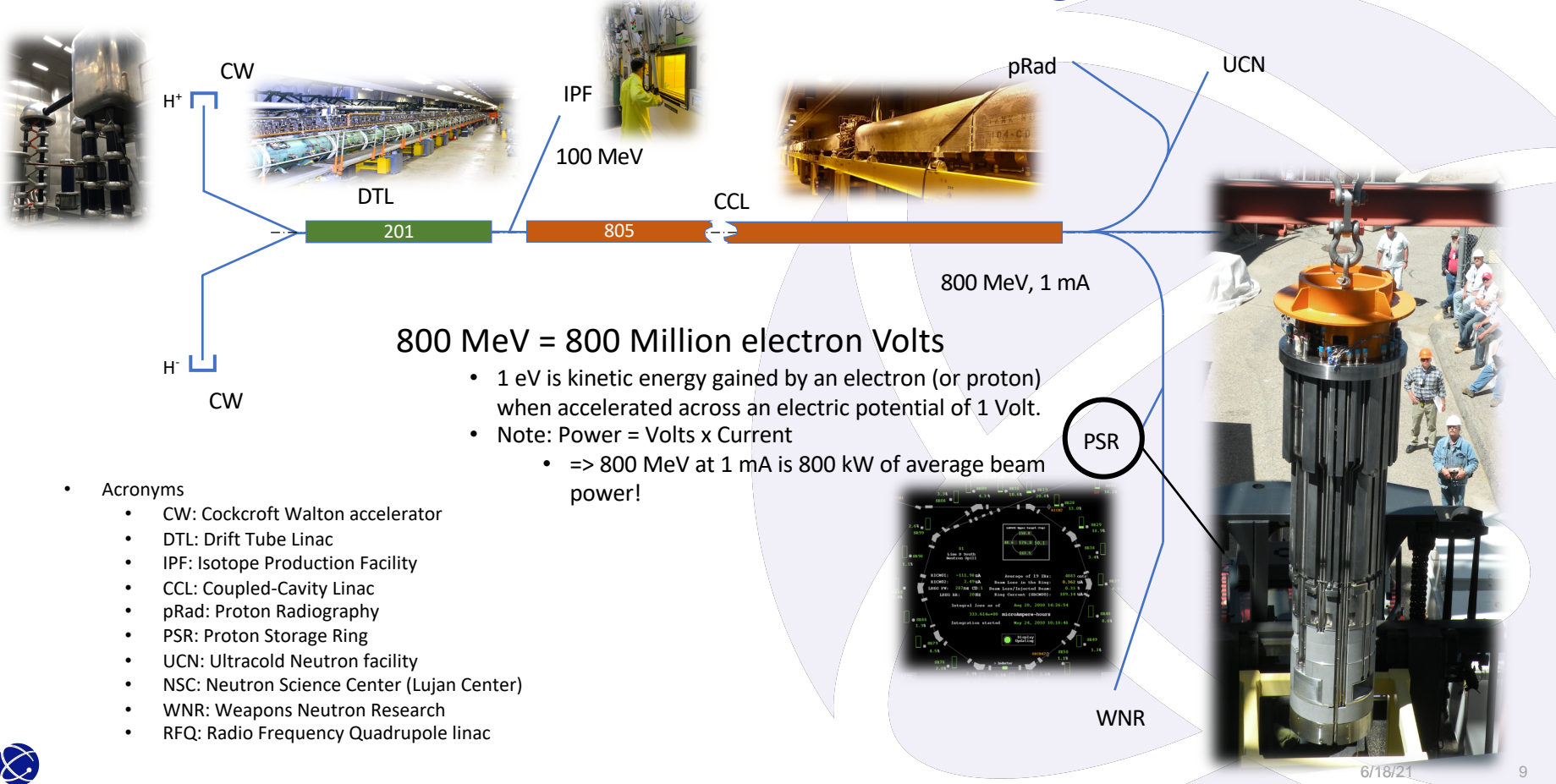
LANSCCE Accelerators: The big stuff



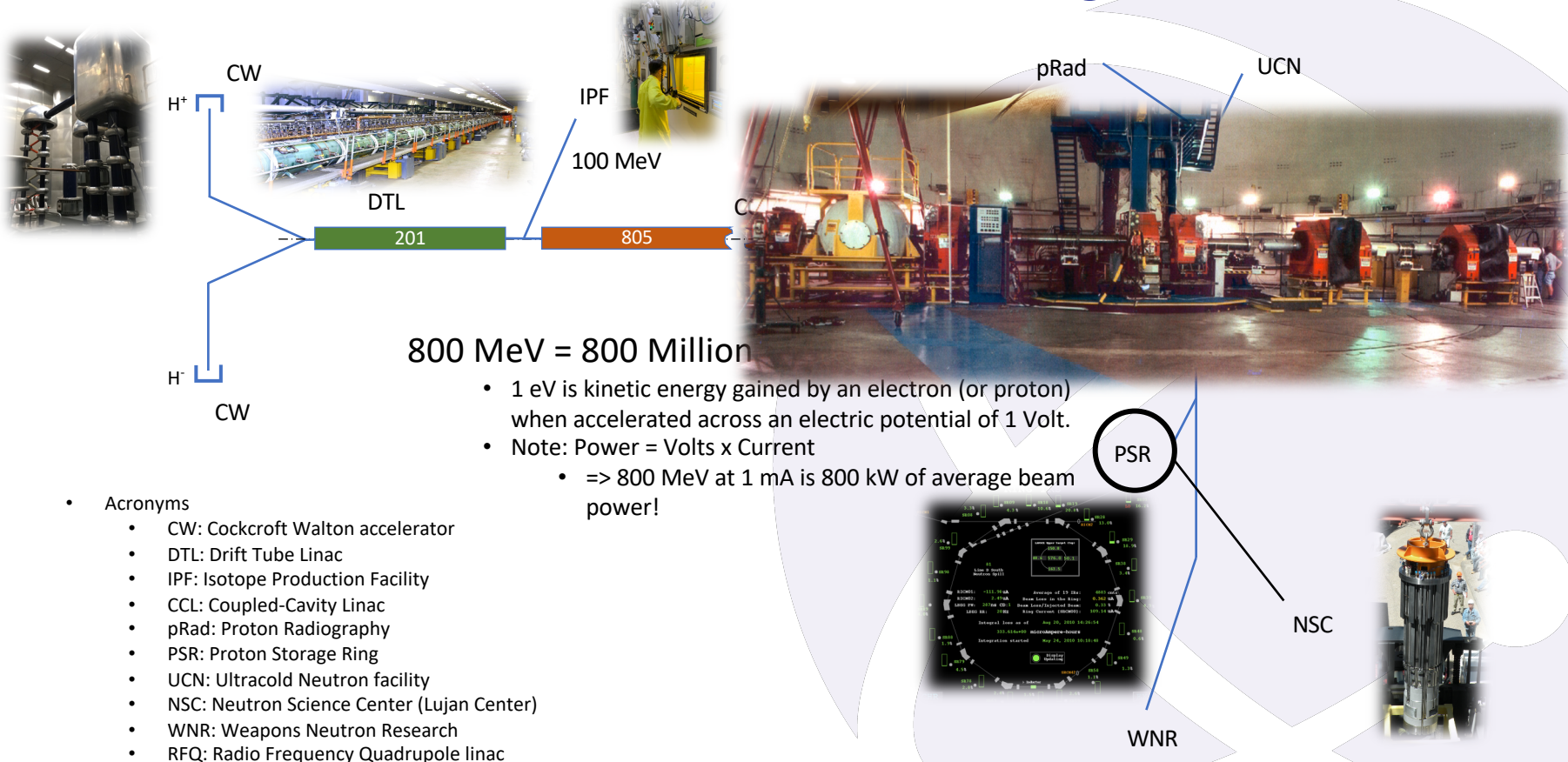
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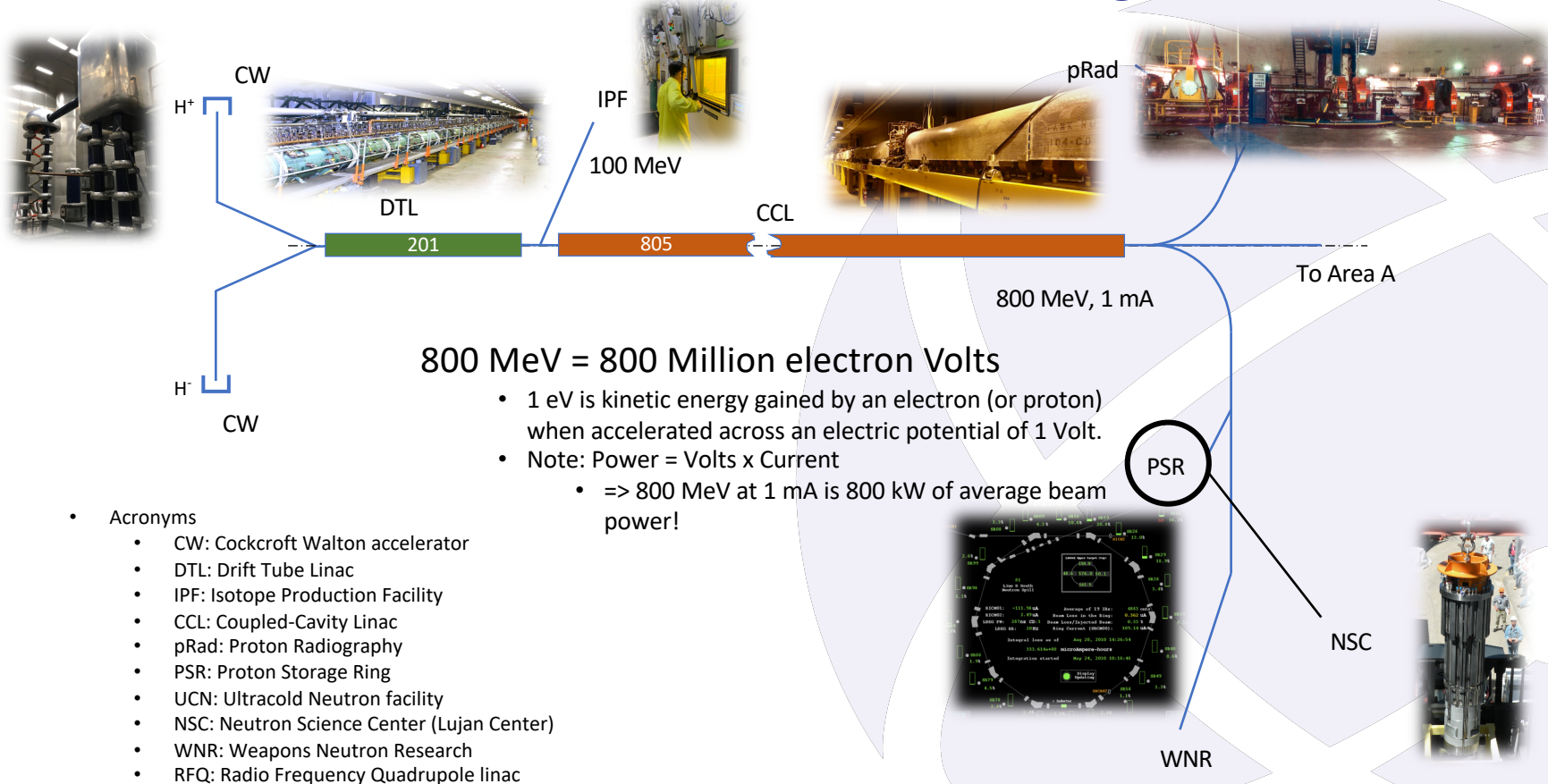
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There are many hazards to be aware of at LANSCE

- **Electrical** – HVDC (up to 670 kV), HVAC (up to 14 kV), large capacitor systems, high-current power supplies
- **Prompt & Residual Radiation** – accelerator beam, beam activated components
- **Microwaves** – RF sources such as high-power tubes and klystrons
- **High Magnetic Fields** – focusing and bending magnets
- **Radioactive Contamination** – beam activated components
- **Pressure Systems** – water, gas
- **Mechanical** – However, many hazards are mitigated by engineered controls.



Heavy Equipment - cranes, forklifts

We want you to have a safe, secure, and productive summer!

- If you have any general questions or concerns reach out to AOT-DO, Louis Peterson 31-337 or Melissa Martinez 31-343
- Avail yourself of the resources your mentor can provide
- Ask for help if you are unsure – work with your mentor to have a clear understanding of expectations and what you are authorized to do
- Keep your head in the game – think before you act
- The Lab has diverse learning opportunities – make the best of all of them
- Don't be afraid to ask questions – get the most out of and try to learn something each day
- It's fire season. *Make sure we know how to contact you, and you us.*



Have a great time!

